Agency for Healthcare Research and Quality
Advancing Excellence in Health Care

NATIONAL GUIDELINE CLEARINGHOUSE

General

Guideline Title

Final recommendation statement: obesity in children and adolescents: screening.

Bibliographic Source(s)

Final recommendation statement: obesity in children and adolescents: screening. [internet]. Rockville (MD): U.S. Preventive Services Task Force (USPSTF); 2017 Jun [8 p]. [31 references]

Guideline Status

This is the current release of the guideline.

This guideline updates a previous version: U.S. Preventive Services Task Force (USPSTF). Screening for obesity in children and adolescents: US Preventive Services Task Force recommendation statement. Pediatrics. 2010 Feb;125(2):361-7.

This guideline meets NGC's 2013 (revised) inclusion criteria.

NEATS Assessment

National Guideline Clearinghouse (NGC) has assessed this guideline's adherence to standards of trustworthiness, derived from the Institute of Medicine's report Clinical Practice Guidelines We Can Trust.

= Poor = Fair = Good = Very Good = Excellent

Assessment	Standard of Trustworthiness
YES	Disclosure of Guideline Funding Source
	Disclosure and Management of Financial Conflict of Interests
	Guideline Development Group Composition

YES	Multidisciplinary Group
YES	Methodologist Involvement
▮▮▯▯▯	Patient and Public Perspectives
	Use of a Systematic Review of Evidence
▮▮▮▮▮	Search Strategy
▮▮▮▮▮	Study Selection
▮▮▮▮▮	Synthesis of Evidence
	Evidence Foundations for and Rating Strength of Recommendations
▮▮▮▮▯	Grading the Quality or Strength of Evidence
▮▮▮▮▮	Benefits and Harms of Recommendations
▮▮▮▮▮	Evidence Summary Supporting Recommendations
▮▮▮▮▮	Rating the Strength of Recommendations
▮▮▮▮▮	**Specific and Unambiguous Articulation of Recommendations**
▮▮▮▮▯	**External Review**
▮▮▮▮▮	**Updating**

Recommendations

Major Recommendations

The U.S. Preventive Services Task Force (USPSTF) grades its recommendations (A, B, C, D, or I) and identifies the Levels of Certainty regarding Net Benefit (High, Moderate, and Low). The definitions of these grades can be found at the end of the "Major Recommendations" field.

Recommendation Summary

The USPSTF recommends that clinicians screen for obesity in children and adolescents 6 years and older and offer or refer them to comprehensive, intensive behavioral interventions to promote improvements in weight status. (B recommendation)

Clinical Considerations

Patient Population Under Consideration

This recommendation applies to children and adolescents 6 years and older.

Assessment of Risk

Although all children and adolescents are at risk for obesity and should be screened, there are several specific risk factors, including parental obesity, poor nutrition, low levels of physical activity, inadequate

sleep, sedentary behaviors, and low family income.

Risk factors associated with obesity in younger children include maternal diabetes, maternal smoking, gestational weight gain, and rapid infant growth. A decrease in physical activity in young children is a risk factor for obesity later in adolescence. Obesity rates continue to increase in some racial/ethnic minority populations. These racial/ethnic differences in obesity prevalence are likely a result of both genetic and nongenetic factors (e.g., socioeconomic status, intake of sugar-sweetened beverages and fast food, and having a television in the bedroom). The prevalence of obesity is approximately 21% to 25% among African American and Hispanic children 6 years and older. In contrast, the prevalence of obesity ranges from 3.7% among Asian girls aged 6 to 11 years to 20.9% among non-Hispanic white adolescent girls.

Screening Tests

Body mass index (BMI) measurement is the recommended screening test for obesity. BMI percentile is plotted on growth charts, such as those developed by the Centers for Disease Control and Prevention (CDC), which are based on U.S.-specific, population-based norms for children 2 years and older. Obesity is defined as an age- and sex-specific BMI in the 95th percentile or greater.

Screening Interval

The USPSTF found no evidence regarding appropriate screening intervals for obesity in children and adolescents. Height and weight, which are necessary for BMI calculation, are routinely measured during health maintenance visits.

Treatment and Implementation

The USPSTF recognizes the challenges that children and their families encounter in having limited access to effective, intensive behavioral interventions for obesity. Identifying obesity in children and how to address it are important steps in helping children and families obtain the support they need.

The USPSTF found that comprehensive, intensive behavioral interventions with a total of 26 contact hours or more over a period of 2 to 12 months resulted in weight loss (see Table 1 in the original guideline document). Behavioral interventions with a total of 52 contact hours or more demonstrated greater weight loss and some improvements in cardiovascular and metabolic risk factors. These effective, higher-intensity (≥26 contact hours) behavioral interventions consisted of multiple components. Although these components varied across interventions, they frequently included sessions targeting both the parent and child (separately, together, or both); offered individual sessions (both family and group); provided information about healthy eating, safe exercising, and reading food labels; encouraged the use of stimulus control (e.g., limiting access to tempting foods and limiting screen time), goal setting, self-monitoring, contingent rewards, and problem solving; and included supervised physical activity sessions. Intensive interventions involving 52 or more contact hours rarely took place in primary care settings but rather in settings to which primary care clinicians could refer patients. These types of interventions were often delivered by multidisciplinary teams, including pediatricians, exercise physiologists or physical therapists, dieticians or diet assistants, psychologists or social workers, or other behavioral specialists.

Adherence to interventions can change their effectiveness. In the included trials, 68% to 95% of participants completed all of the sessions. Lower adherence in clinical practice could decrease the overall benefit of these interventions.

Metformin has been used for weight loss in children but is not approved by the U.S. Food and Drug Administration for this purpose. Metformin has a small effect on weight (BMI reduction <1), and this effect is of uncertain clinical significance. Although the harms of metformin use are probably small, evidence regarding long-term outcomes of its use is lacking. In addition, participants in the metformin trials had abnormal insulin or glucose metabolism, and most had severe obesity. This limits the applicability of the results to a general pediatric population with obesity. Orlistat is approved by the U.S. Food and Drug Administration for use in adolescents 12 years and older. However, orlistat also has a small effect on weight (BMI reduction <1), and this effect is of uncertain clinical significance. In addition, orlistat is associated with moderate harms. Therefore, the USPSTF encourages clinicians to promote

behavioral interventions as the primary effective intervention for weight loss in children and adolescents.

Clinically Important Weight Loss

Research studies use a standardized measure (*z* score) of BMI known as BMI *z* score. This measure helps compare results among children of different ages and over time as children grow. A few observational studies have addressed the question of what change in BMI *z* score or excess weight represents a clinically important change. These studies showed that a BMI *z* score reduction of 0.15 to 0.25 is associated with improvements in cardiovascular and metabolic risk factors. A German expert panel determined that a BMI *z* score reduction of 0.20 is clinically significant and is comparable to a weight loss of approximately 5%. A BMI *z* score reduction in the range of 0.20 to 0.25 appears to be a suitable threshold for clinically important change.

An analysis of 10-year outcomes from 4 randomized clinical trials of family-based behavioral obesity treatment programs suggested an association between weight loss in childhood and decreased risk of obesity in early adulthood. Participants were aged 8 to 12 years at baseline (mean age, 10.4 years), and average age at follow-up was 20 years. Almost all participants (about 85%) had obesity at baseline. The comprehensive behavioral interventions involved 30 or more contact hours with the families. Among children with obesity, 52% continued to have obesity as adults. In contrast, naturalistic longitudinal studies with similar follow-up report obesity rates of 64% to 87% among adults who had obesity as children; US-based studies were often at the upper end of the range.

Additional Approaches to Prevention

The Community Preventive Services Task Force recommends behavioral interventions to reduce sedentary screen time among children 13 years and younger. It found insufficient evidence to recommend school-based obesity programs to prevent or reduce overweight and obesity among children and adolescents.

The CDC recommends 26 separate community strategies to prevent obesity, such as promoting breastfeeding, promoting access to affordable healthy food and beverages, promoting healthy food and beverage choices, and fostering physical activity among children.

Useful Resources

In a separate recommendation, the USPSTF concluded that there is insufficient evidence to assess the balance of benefits and harms of screening for primary hypertension in asymptomatic children and adolescents to prevent subsequent cardiovascular disease in childhood or adulthood (I statement). The USPSTF has also concluded that there is insufficient evidence to assess the balance of benefits and harms of screening for lipid disorders in children and adolescents (I statement).

Definitions

What the U.S. Preventive Services Task Force (USPSTF) Grades Mean and Suggestions for Practice

Grade	Definition	Suggestions for Practice
A	The USPSTF recommends the service. There is high certainty that the net benefit is substantial.	Offer or provide this service.
B	The USPSTF recommends the service. There is high certainty that the net benefit is moderate or there is moderate certainty that the net benefit is moderate to substantial.	Offer or provide this service.
C	The USPSTF recommends selectively offering or providing this service to individual patients based on professional judgment and patient preferences. There is at least moderate certainty that the net benefit is small.	Offer or provide this service for selected patients depending on individual circumstances.
D	The USPSTF recommends against the	Discourage the use of this service.

Grade	Definition	Suggestions for Practice
	service. There is moderate or high certainty that the service has no net benefit or that the harms outweigh the benefits.	
I Statement	The USPSTF concludes that the current evidence is insufficient to assess the balance of benefits and harms of the service. Evidence is lacking, of poor quality or conflicting, and the balance of benefits and harms cannot be determined.	Read the "Clinical Considerations" section of the USPSTF Recommendation Statement (see the "Major Recommendations" field). If the service is offered, patients should understand the uncertainty about the balance of benefits and harms.

USPSTF Levels of Certainty Regarding Net Benefit

Definition: The USPSTF defines certainty as "likelihood that the USPSTF assessment of the net benefit of a preventive service is correct." The net benefit is defined as benefit minus harm of the preventive service as implemented in a general, primary care population. The USPSTF assigns a certainty level based on the nature of the overall evidence available to assess the net benefit of a preventive service.

Level of Certainty	Description
High	The available evidence usually includes consistent results from well-designed, well-conducted studies in representative primary care populations. These studies assess the effects of the preventive service on health outcomes. This conclusion is therefore unlikely to be strongly affected by the results of future studies.
Moderate	The available evidence is sufficient to determine the effects of the preventive service on health outcomes, but confidence in the estimate is constrained by factors such as: The number, size, or quality of individual studies Inconsistency of findings across individual studies Limited generalizability of findings to routine primary care practice Lack of coherence in the chain of evidence As more information becomes available, the magnitude or direction of the observed effect could change, and this change may be large enough to alter the conclusion.
Low	The available evidence is insufficient to assess effects on health outcomes. Evidence is insufficient because of: The limited number or size of studies Important flaws in study design or methods Inconsistency of findings across individual studies Gaps in the chain of evidence Findings not generalizable to routine primary care practice A lack of information on important health outcomes More information may allow an estimation of effects on health outcomes.

Clinical Algorithm(s)

None provided

Scope

Disease/Condition(s)

Obesity

Note: Obesity is defined as an age- and gender-specific body mass index (BMI) at ≥95th percentile.

Guideline Category

Prevention

Screening

Clinical Specialty

Family Practice

Pediatrics

Preventive Medicine

Intended Users

Advanced Practice Nurses

Nurses

Physician Assistants

Physicians

Guideline Objective(s)

To update the 2010 U.S. Preventive Services Task Force (USPSTF) recommendation statement on screening for obesity in children 6 years and older

Target Population

Children and adolescents aged 6 years and older

Interventions and Practices Considered

1. Screening for obesity in children and adolescents using body mass index (BMI)
2. Offering or referral to comprehensive, intensive behavioral interventions

Major Outcomes Considered

- Key Question 1: Do screening programs for obesity in children and adolescents reduce excess weight or age-associated excess weight gain, improve health outcomes during childhood, or reduce obesity in adulthood?
    a. Are there effects of screening on cardiometabolic measures, i.e., blood pressure, lipid levels, and insulin resistance?
    b. Are there common components of efficacious screening programs?
    c. Does efficacy differ by key patient subgroups, i.e., age, race/ethnicity, sex, degree of excess weight, and socioeconomic status?
- Key Question 2: Does screening for obesity in children and adolescents have adverse effects?
- Key Question 3: Do weight management interventions for children and adolescents that are embedded in primary care, or to which primary care providers refer, improve health outcomes during childhood or reduce incidence of obesity in adulthood?
    a. Are there common components of efficacious interventions?
    b. Does efficacy differ by key patient subgroups, i.e., age, race/ethnicity, sex, degree of excess weight, and socioeconomic status?

- Key Question 4: Do weight management interventions for children and adolescents that are embedded in primary care, or to which primary care providers refer, reduce excess weight or age-associated excess weight gain?
    a. Are there effects of interventions on cardiometabolic measures, i.e., blood pressure, lipid levels, and insulin resistance?
    b. Are there common components of efficacious interventions?
    c. Does efficacy differ by key patient subgroups, i.e., age, race/ethnicity, sex, degree of excess weight, and socioeconomic status?
- Key Question 5: Do weight management interventions for children and adolescents have adverse effects?

Methodology

Methods Used to Collect/Select the Evidence

Hand-searches of Published Literature (Primary Sources)

Hand-searches of Published Literature (Secondary Sources)

Searches of Electronic Databases

Description of Methods Used to Collect/Select the Evidence

Note from the National Guideline Clearinghouse (NGC): A systematic evidence review update was prepared by the Kaiser Permanente Research Affiliates Evidence-based Practice Center (EPC) for use by the U.S. Preventive Services Task Force (USPSTF) (see the "Availability of Companion Documents" field).

Data Sources and Searches

In addition to evaluating all studies from the previous USPSTF reviews and selected studies from other reviews identified through an initial search for existing systematic reviews, the EPC staff searched for newly published literature in MEDLINE/PubMed, PsycINFO, Cochrane Central Register of Controlled Trials, PsycINFO, and the Education Resources Information Center. For screening studies, they searched from January 1, 2005, through January 22, 2016 (bridging from the 2005 USPSTF review), and for treatment studies, from January 1, 2010, through January 22, 2016 (bridging from the 2010 USPSTF review). Reference lists of other relevant publications were also reviewed to identify additional studies published in or after 1985. Since January 2016, the systematic review authors continued to conduct ongoing surveillance through article alerts and targeted searches of high-impact journals to identify major studies published in the interim that may affect the conclusions or understanding of the evidence and therefore the related USPSTF recommendation. The last surveillance was conducted on December 5, 2016, and identified no relevant new studies.

To reduce the risk of reporting bias for trials of metformin and orlistat, both the Drugs@FDA and ClinicalTrials.gov Web sites were used. Drugs@FDA was searched for the drug approval package for orlistat using the method described by Turner. The systematic review authors did not search for the metformin drug approval package, because it is a generic name and the Food and Drug Administration reviews for generics are focused on bioequivalence rather than efficacy and safety. The package inserts were examined to review known harms and adverse effects of both drugs. ClinicalTrials.gov was searched using the terms "orlistat" and "metformin." For study titles that appeared relevant, the full records were reviewed by 2 investigators; studies meeting eligibility criteria were matched with published articles where possible. One study published results in ClinicalTrials.gov without a subsequent journal publication, although correspondence with study authors indicated that a manuscript submission was expected.

Study Selection

Two investigators independently reviewed 9491 abstracts and 464 full-text articles against inclusion and exclusion criteria. Disagreements were resolved through discussion or consultation with a third investigator.

Eligible studies were fair- or good-quality studies published in English that were conducted in "economically developed" countries according to membership in the Organisation for Economic Co-operation and Development. Randomized clinical trials (RCTs) and nonrandomized controlled trials that examined the benefits or harms of screening or weight management interventions (counseling, metformin, orlistat, and health care system– level approaches) among children and adolescents aged 2 to 18 years were included. In addition, large observational studies that examined harms of metformin and orlistat in children or adolescents were eligible; no such studies met the inclusion criteria.

Included trials had to be conducted in or recruited from health care settings and have a primary aim of reducing excess weight (through weight loss or limiting weight gain with growth in height) or maintaining previous reductions in excess weight. Studies of weight management interventions also could take place in telephone, virtual, community, or research settings as long as there was a connection to a health setting (e.g., recruitment primarily from a health care setting). Studies were excluded if they were conducted in settings that were not generalizable to primary care, such as school classrooms or residential treatment facilities; if they contained components that would not be feasible for an outpatient health care setting, such as interventions that provided most or all of the participants' food; or included community-wide media or built environment components.

Trials were required to target individuals meeting the Centers for Disease Control and Prevention (CDC) or other similar criteria for overweight or obesity, those who had excess weight previously and were engaged in weight maintenance, or high-risk populations with a high proportion of youth with excess weight. Therefore, studies were also included if at least half the sample met the criteria for overweight or obesity and the study targeted a population with elevated risk of obesity (e.g., children with overweight parents; Hispanic, black, or American Indian/Alaska Native ethnicity) or with obesity-related medical problems (e.g., type 2 diabetes, the metabolic syndrome, hypertension, lipid abnormalities). Studies were excluded if they were limited to youth who had an eating disorder, who were pregnant or postpartum, who were overweight or had obesity secondary to a medical condition, who had an intellectual or developmental disability, or who were in college.

Control groups of behavior-based interventions could include usual care, no intervention, waitlist, attention control or minimal intervention (e.g., pamphlets or 1 to 2 brief sessions with no more than 60 minutes of total estimated direct contact). Pharmacotherapy trials had to include a placebo control. Trials that included a concomitant lifestyle intervention were required to have the same lifestyle intervention in both the pharmacotherapy and the placebo groups.

Trials of screening or treatment benefit had to report at least 1 weight outcome. Other outcomes included health outcomes (e.g., reduced orthopedic pain, sleep apnea, or asthma; improved quality of life, functioning, or depression; avoidance of adult obesity), intermediate cardiometabolic outcomes (blood pressure, lipid, insulin/glucose measures), and adverse effects of screening or treatment (e.g., labeling, stigma or increased body image concerns, eating disorder, exercise-induced injury). Outcomes other than harms had to be reported at a minimum of 6 months after randomization; 12 months was the preferred outcome point.

Number of Source Documents

See the literature search flow diagram (Figure 2) in the systematic review (see the "Availability of Companion Documents" field) for a summary of evidence search and selection.

Articles included for Key Questions (KQs):

Articles included for KQ1: 0

Articles included for KQ2: 0
Articles included for KQ3: 23 (12 studies)
Articles included for KQ4: 98 (56 studies)
Articles included for KQ5: 33 (25 studies)

Methods Used to Assess the Quality and Strength of the Evidence

Weighting According to a Rating Scheme (Scheme Given)

Rating Scheme for the Strength of the Evidence

Two investigators independently assessed the quality of the included studies by using criteria defined by the U.S. Preventive Services Task Force (USPSTF) (see eTable1 in the systematic review supplement [see the "Availability of Companion Documents" field]). Each study was assigned a final quality rating of good, fair, or poor; disagreements among investigators were resolved through discussion or consultation with a third investigator.

Methods Used to Analyze the Evidence

Meta-Analysis

Review of Published Meta-Analyses

Systematic Review with Evidence Tables

Description of the Methods Used to Analyze the Evidence

Note from the National Guideline Clearinghouse (NGC): A systematic evidence review update was prepared by the Kaiser Permanente Research Affiliates Evidence-based Practice Center (EPC) for use by the U.S. Preventive Services Task Force (USPSTF) (see the "Availability of Companion Documents" field).

Data Extraction and Quality Assessment

Two investigators independently assessed the quality of the included studies by using criteria defined by the USPSTF. Each study was assigned a final quality rating of good, fair, or poor; disagreements among investigators were resolved through discussion or consultation with a third investigator. The systematic review authors excluded studies as poor quality if there was a major flaw (e.g., attrition >40%, differential attrition >20%) or multiple important limitations that could invalidate the results, such as noncomparable groups at baseline, differential reason for dropout, imbalances on important variables due to dropout or baseline differences that were not controlled for, problematic measurement procedures, nonblinded allocation, and attrition of 20% to 39%. One investigator abstracted data from the included studies, and a second investigator checked data for accuracy. They abstracted study design details, population characteristics, intervention characteristics, and outcomes.

Data Synthesis and Analysis

The systematic review authors created summary tables of study, population, and intervention characteristics to examine the consistency, precision, and relationship of effect size with key potential modifiers. Weight-related measures at 12 months' follow-up were the primary outcome, with a body mass index (BMI) *z* score or standard deviation score selected as the primary outcome if available. The systematic review authors refer to either of these measures as BMI *z* score, which is the number of standard deviations the child's BMI differs from the median according to norms such as those of the Centers for Disease Control (CDC) or International Obesity Task Force. BMI *z* score was chosen as the preferred outcome because it was the only widely available measure that could be used to compare

relative degree of excess weight across ages. The BMI *z* score values associated with the 85th and 95th percentiles according to CDC standards are 1.036 and 1.645, respectively. If BMI *z* score was not reported, BMI (calculated as weight in kilograms divided by height in meters squared), weight, waist circumference, or BMI percentile were used. The closest follow-up to 12 months was used (range, 6-24 months).

Hours of contact were estimated based on the number of planned treatment sessions and the length of each session. When information on session length was not provided, assumptions developed a priori were used to estimate contact hours, for example, assigning phone sessions to be 15 minutes and "brief" phone sessions to be 5 minutes. Interventions were grouped by hours of contact (0 to 5 hours, 6 to 25 hours, 26 to 51 hours, ≥52 hours). The systematic review authors carried forward the 26-hour cutoff from the previous review, which was comparable to weekly 1-hour sessions for 6 months. For this review 2 additional cutoffs were added post hoc when heterogeneity in effect sizes remained high and appeared related to contact hours. The authors selected the 52-hour cutoff to extend the logic of weekly visits from 6 months up to 1 year and selected the 6-hour cutoff because all trials with fewer than 6 hours of contact involved only individual visits, while almost all (25/27) interventions above this cutoff included group sessions. For trials with interventions that lasted longer than 12 months but that reported a 12-month outcome, estimated hours of contact in the first 12 months only are shown in the forest plots.

Random-effects meta-analysis was conducted using the DerSimonian and Laird estimation method to examine group differences in change from baseline. Sensitivity analyses were conducted using a restricted maximum likelihood model with the Knapp-Hartung modification for small samples, which is a more conservative approach when there is substantial statistical heterogeneity or the number of studies is small. When only 4 or 5 trials could be included in a meta-analysis, the systematic review authors attempted to use the profile likelihood method for sensitivity analysis, but if this model did not converge, the restricted maximum likelihood model results were used. For the lifestyle-based weight loss trials, BMI *z* score, any weight measure, and, among trials with 52 or more contact hours, cardiometabolic outcomes were analyzed. When pooling any weight measure, standardized mean differences in change between groups were used. Because hours of contact appeared to be a strong effect modifier, separate pooled estimates were generated for each level of contact hours. For metformin, separate meta-analyses were conducted for BMI, BMI *z* score, and cardiometabolic outcomes reported in at least 4 trials.

The I^2 statistic was used to assess statistical heterogeneity. Funnel plots and the Egger test were used to examine the risk of small-study effects for the lifestyle-based weight loss trials, combining trials across all levels of estimated contact hours (36 trials had sufficient data to include in a funnel plot) (see eFigure in the systematic review supplement). There were not sufficient data to perform these analyses for other outcomes or for metformin trials.

Analyses were conducted in Stata version 13.1 (StataCorp). All significance testing was 2-sided, and the results were considered statistically significant at $P \leq .05$.

Methods Used to Formulate the Recommendations

Balance Sheets

Expert Consensus

Description of Methods Used to Formulate the Recommendations

The U.S. Preventive Services Task Force (USPSTF) systematically reviews the evidence concerning both the benefits and harms of widespread implementation of a preventive service. It then assesses the certainty of the evidence and the magnitude of the benefits and harms. On the basis of this assessment, the USPSTF assigns a letter grade to each preventive service signifying its recommendation about provision of the service (see Table below). An important, but often challenging, step is determining the balance between benefits and harms to estimate "net benefit" (that is, benefits minus harms).

Table 1. U.S. Preventive Services Task Force Recommendation Grid*

Certainty of Net Benefit	Magnitude of Net Benefit			
	Substantial	Moderate	Small	Zero/Negative
High	A	B	C	D
Moderate	B	B	C	D
Low	Insufficient			

**A*, *B*, *C*, *D*, and *I (Insufficient)* represent the letter grades of recommendation or statement of insufficient evidence assigned by the U.S. Preventive Services Task Force after assessing certainty and magnitude of net benefit of the service (see the "Rating Scheme for the Strength of the Recommendations" field).

The overarching question that the USPSTF seeks to answer for every preventive service is whether evidence suggests that provision of the service would improve health outcomes if implemented in a general primary care population. For screening topics, this standard could be met by a large randomized, controlled trial (RCT) in a representative asymptomatic population with follow-up of all members of both the group "invited for screening" and the group "not invited for screening."

Direct RCT evidence about screening is often unavailable, so the USPSTF considers indirect evidence. To guide its selection of indirect evidence, the USPSTF constructs a "chain of evidence" within an analytic framework. For each key question, the body of pertinent literature is critically appraised, focusing on the following 6 questions:

> Do the studies have the appropriate research design to answer the key question(s)?
> To what extent are the existing studies of high quality? (i.e., what is the internal validity?)
> To what extent are the results of the studies generalizable to the general U.S. primary care population and situation? (i.e., what is the external validity?)
> How many studies have been conducted that address the key question(s)? How large are the studies? (i.e., what is the precision of the evidence?)
> How consistent are the results of the studies?
> Are there additional factors that assist the USPSTF in drawing conclusions (e.g., presence or absence of dose–response effects, fit within a biologic model)?

The next step in the process is to use the evidence from the key questions to assess whether there would be net benefit if the service were implemented. In 2001, the USPSTF published an article that documented its systematic processes of evidence evaluation and recommendation development. At that time, the USPSTF's overall assessment of evidence was described as good, fair, or poor. The USPSTF realized that this rating seemed to apply only to how well studies were conducted and did not fully capture all of the issues that go into an overall assessment of the evidence about net benefit. To avoid confusion, the USPSTF has changed its terminology. Whereas individual study quality will continue to be characterized as good, fair, or poor, the term *certainty* will now be used to describe the USPSTF's assessment of the overall body of evidence about net benefit of a preventive service and the likelihood that the assessment is correct. Certainty will be determined by considering all 6 questions listed above; the judgment about certainty will be described as high, moderate, or low.

In making its assessment of certainty about net benefit, the evaluation of the evidence from each key question plays a primary role. It is important to note that the USPSTF makes recommendations for real-world medical practice in the United States and must determine to what extent the evidence for each key question—even evidence from screening RCTs or treatment RCTs—can be applied to the general primary care population. Frequently, studies are conducted in highly selected populations under special conditions. The USPSTF must consider differences between the general primary care population and the populations studied in RCTs and make judgments about the likelihood of observing the same effect in actual practice.

It is also important to note that one of the key questions in the analytic framework refers to the potential harms of the preventive service. The USPSTF considers the evidence about the benefits and

harms of preventive services separately and equally. Data about harms are often obtained from observational studies because harms observed in RCTs may not be representative of those found in usual practice and because some harms are not completely measured and reported in RCTs.

Putting the body of evidence for all key questions together as a chain, the USPSTF assesses the certainty of net benefit of a preventive service by asking the 6 major questions listed above. The USPSTF would rate a body of convincing evidence about the benefits of a service that, for example, derives from several RCTs of screening in which the estimate of benefits can be generalized to the general primary care population as "high" certainty (see the "Rating Scheme for the Strength of Recommendations" field). The USPSTF would rate a body of evidence that was not clearly applicable to general practice or has other defects in quality, research design, or consistency of studies as "moderate" certainty. Certainty is "low" when, for example, there are gaps in the evidence linking parts of the analytic framework, when evidence to determine the harms of treatment is unavailable, or when evidence about the benefits of treatment is insufficient. Table 4 in the methodology document listed below (see "Availability of Companion Documents" field) summarizes the current terminology used by the USPSTF to describe the critical assessment of evidence at all 3 levels: individual studies, key questions, and overall certainty of net benefit of the preventive service.

Sawaya GF et al. Update on the methods of the U.S. Preventive Services Task Force: estimating certainty and magnitude of net benefit. Ann Intern Med. 2007;147:871-875 [5 references].

Rating Scheme for the Strength of the Recommendations

What the U.S. Preventive Services Task Force (USPSTF) Grades Mean and Suggestions for Practice

Grade	Definition	Suggestions for Practice
A	The USPSTF recommends the service. There is high certainty that the net benefit is substantial.	Offer or provide this service.
B	The USPSTF recommends the service. There is high certainty that the net benefit is moderate, or there is moderate certainty that the net benefit is moderate to substantial.	Offer or provide this service.
C	The USPSTF recommends selectively offering or providing this service to individual patients based on professional judgment and patient preferences. There is at least moderate certainty that the net benefit is small.	Offer or provide this service for selected patients depending on individual circumstances.
D	The USPSTF recommends against the service. There is moderate or high certainty that the service has no net benefit or that the harms outweigh the benefits.	Discourage the use of this service.
I Statement	The USPSTF concludes that the current evidence is insufficient to assess the balance of benefits and harms of the service. Evidence is lacking, of poor quality or conflicting, and the balance of benefits and harms cannot be determined.	Read the "Clinical Considerations" section of the USPSTF Recommendation Statement (see the "Major Recommendations" field). If the service is offered, patients should understand the uncertainty about the balance of benefits and harms.

USPSTF Levels of Certainty Regarding Net Benefit

Definition: The USPSTF defines certainty as "likelihood that the USPSTF assessment of the net benefit of a preventive service is correct." The net benefit is defined as benefit minus harm of the preventive service as implemented in a general, primary care population. The USPSTF assigns a certainty level based on the nature of the overall evidence available to assess the net benefit of a preventive service.

Level of Certainty	Description
High	The available evidence usually includes consistent results from well-designed, well-conducted studies in representative primary care populations. These studies assess the effects of the preventive service on health outcomes. This conclusion is therefore unlikely to be strongly affected by the results of future studies.
Moderate	The available evidence is sufficient to determine the effects of the preventive service on health outcomes, but confidence in the estimate is constrained by factors such as: The number, size, or quality of individual studies Inconsistency of findings across individual studies Limited generalizability of findings to routine primary care practice Lack of coherence in the chain of evidence As more information becomes available, the magnitude or direction of the observed effect could change, and this change may be large enough to alter the conclusion.
Low	The available evidence is insufficient to assess effects on health outcomes. Evidence is insufficient because of: The limited number or size of studies Important flaws in study design or methods Inconsistency of findings across individual studies Gaps in the chain of evidence Findings not generalizable to routine primary care practice A lack of information on important health outcomes More information may allow an estimation of effects on health outcomes.

Cost Analysis

The U.S. Preventive Services Task Force (USPSTF) does not consider the costs of providing a service in this assessment.

Method of Guideline Validation

Comparison with Guidelines from Other Groups

External Peer Review

Internal Peer Review

Description of Method of Guideline Validation

Peer Review

Before the U.S. Preventive Services Task Force (USPSTF) makes its final determinations about recommendations on a given preventive service, the Evidence-based Practice Center and the Agency for Healthcare Research and Quality send a draft evidence review to 4 to 6 external experts and to Federal agencies and professional and disease-based health organizations with interests in the topic. The experts are asked to examine the review critically for accuracy and completeness and to respond to a series of specific questions about the document. The draft evidence review is also posted on the USPSTF Web site for public comment. After assembling these external review comments and documenting the proposed response to key comments, the topic team presents this information to the USPSTF in memo form. In this way, the USPSTF can consider these external comments before it votes on its recommendations about the service. Draft recommendation statements are then circulated for comment among reviewers representing professional societies, voluntary organizations, and Federal agencies, as well as posted on the USPSTF Web site for public comment. These comments are discussed before the final recommendations are confirmed.

Response to Public Comment

A draft version of this recommendation statement was posted for public comment on the USPSTF Web site from November 1 to November 28, 2016. Many comments asked about the components of effective interventions. In response, the USPSTF added language in the "Effectiveness of Early Detection and Interventions" section to describe the components of effective interventions and the types of health professionals who would deliver care in these interventions. Another frequently raised concern was the lack of a recommendation for children younger than 6 years. The USPSTF added language in the aforementioned section on the lack of sufficient evidence in young children. The USPSTF added language about subgroup analyses, access, and research gaps based on comments.

Comparison with Guidelines from Other Groups

Recommendations for screening for obesity in children and adolescents were considered from the following groups: the American Medical Association (AMA), the American Academy of Pediatrics (AAP), the National Heart, Lung, and Blood Institute (NHLBI), the Canadian Task Force on Preventive Health Care, National Academies Health and Medicine Division (formerly the Institute of Medicine), and the National Association of Pediatric Nurse Practitioners.

Evidence Supporting the Recommendations

Type of Evidence Supporting the Recommendations

The type of evidence supporting the recommendation is not specifically stated.

Benefits/Harms of Implementing the Guideline Recommendations

Potential Benefits

Benefits of Detection and Early Intervention or Treatment

The U.S. Preventive Services Task Force (USPSTF) found adequate evidence that screening and intensive behavioral interventions for obesity in children and adolescents 6 years and older can lead to improvements in weight status. The magnitude of this benefit is moderate.

Studies on pharmacotherapy interventions (i.e., metformin and orlistat) showed small amounts of weight loss. The magnitude of this benefit is of uncertain clinical significance, because the evidence regarding the effectiveness of metformin and orlistat is inadequate.

Potential Harms

Harms of Detection and Early Intervention or Treatment

The U.S. Preventive Services Task Force (USPSTF) found adequate evidence to bound the harms of screening and comprehensive, intensive behavioral interventions for obesity in children and adolescents as small to none, based on the likely minimal harms of using body mass index (BMI) as a screening tool, the absence of reported harms in the evidence on behavioral interventions, and the noninvasive nature of the interventions.

Evidence on the harms associated with metformin is inadequate. Adequate evidence shows that orlistat has moderate harms, including abdominal pain or cramping, flatus with discharge, fecal incontinence, and

fatty or oily stools.

Qualifying Statements

Qualifying Statements

- The U.S. Preventive Services Task Force (USPSTF) makes recommendations about the effectiveness of specific preventive care services for patients without obvious related signs or symptoms.
- It bases its recommendations on the evidence of both the benefits and harms of the service and an assessment of the balance. The USPSTF does not consider the costs of providing a service in this assessment.
- The USPSTF recognizes that clinical decisions involve more considerations than evidence alone. Clinicians should understand the evidence but individualize decision making to the specific patient or situation. Similarly, the USPSTF notes that policy and coverage decisions involve considerations in addition to the evidence of clinical benefits and harms.
- Recommendations made by the USPSTF are independent of the U.S. government. They should not be construed as an official position of Agency for Healthcare Research and Quality (AHRQ) or the U.S. Department of Health and Human Services.

Implementation of the Guideline

Description of Implementation Strategy

The experiences of the first and second U.S. Preventive Services Task Force (USPSTF), as well as that of other evidence-based guideline efforts, have highlighted the importance of identifying effective ways to implement clinical recommendations. Practice guidelines are relatively weak tools for changing clinical practice when used in isolation. To effect change, guidelines must be coupled with strategies to improve their acceptance and feasibility. Such strategies include enlisting the support of local opinion leaders, using reminder systems for clinicians and patients, adopting standing orders, and audit and feedback of information to clinicians about their compliance with recommended practice.

In the case of preventive services guidelines, implementation needs to go beyond traditional dissemination and promotion efforts to recognize the added patient and clinician barriers that affect preventive care. These include clinicians' ambivalence about whether preventive medicine is part of their job, the psychological and practical challenges that patients face in changing behaviors, lack of access to health care or of insurance coverage for preventive services for some patients, competing pressures within the context of shorter office visits, and the lack of organized systems in most practices to ensure the delivery of recommended preventive care.

Dissemination strategies have changed dramatically in this age of electronic information. While recognizing the continuing value of journals and other print formats for dissemination, the USPSTF will make all its products available through its Web site . The combination of electronic access and extensive material in the public domain should make it easier for a broad audience of users to access USPSTF materials and adapt them for their local needs. Online access to USPSTF products also opens up new possibilities for the appearance of the annual, pocket-size *Guide to Clinical Preventive Services*.

To be successful, approaches for implementing prevention have to be tailored to the local level and deal with the specific barriers at a given site, typically requiring the redesign of systems of care. Such a systems approach to prevention has had notable success in established staff-model health maintenance organizations, by addressing organization of care, emphasizing a philosophy of prevention, and altering the training and incentives for clinicians. Staff-model plans also benefit from integrated information

systems that can track the use of needed services and generate automatic reminders aimed at patients and clinicians, some of the most consistently successful interventions. Information systems remain a major challenge for individual clinicians' offices, however, as well as for looser affiliations of practices in network-model managed care and independent practice associations, where data on patient visits, referrals, and test results are not always centralized.

Implementation Tools

Mobile Device Resources

Patient Resources

Pocket Guide/Reference Cards

For information about availability, see the *Availability of Companion Documents* and *Patient Resources* fields below.

Institute of Medicine (IOM) National Healthcare Quality Report Categories

IOM Care Need

Staying Healthy

IOM Domain

Effectiveness

Patient-centeredness

Identifying Information and Availability

Bibliographic Source(s)

Final recommendation statement: obesity in children and adolescents: screening. [internet]. Rockville (MD): U.S. Preventive Services Task Force (USPSTF); 2017 Jun [8 p]. [31 references]

Adaptation

Not applicable: The guideline was not adapted from another source.

Date Released

2017 Jun

Guideline Developer(s)

U.S. Preventive Services Task Force - Independent Expert Panel

Guideline Developer Comment

The U.S. Preventive Services Task Force (USPSTF) is a federally-appointed panel of independent experts. Conclusions of the USPSTF do not necessarily reflect policy of the U.S. Department of Health and Human Services (DHHS) or its agencies.

Source(s) of Funding

The U.S. Preventive Services Task Force (USPSTF) is an independent, voluntary body. The U.S. Congress mandates that the Agency for Healthcare Research and Quality (AHRQ) support the operations of the USPSTF.

Guideline Committee

U.S. Preventive Services Task Force (USPSTF)

Composition of Group That Authored the Guideline

*Task Force Members**: David C. Grossman, MD, MPH (Kaiser Permanente Washington Health Research Institute, Seattle); Kirsten Bibbins-Domingo, PhD, MD, MAS (University of California, San Francisco); Susan J. Curry, PhD (University of Iowa, Iowa City); Michael J. Barry, MD (Harvard Medical School, Boston, Massachusetts); Karina W. Davidson, PhD, MASc (Columbia University, New York, New York); Chyke A. Doubeni, MD, MPH (University of Pennsylvania, Philadelphia); John W. Epling Jr, MD, MSEd (Virginia Tech Carilion School of Medicine, Roanoke); Alex R. Kemper, MD, MPH, MS (Duke University, Durham, North Carolina); Alex H. Krist, MD, MPH (Fairfax Family Practice Residency, Fairfax, Virginia, and Virginia Commonwealth University, Richmond); Ann E. Kurth, PhD, RN, MSN, MPH (Yale University, New Haven, Connecticut); C. Seth Landefeld, MD (University of Alabama at Birmingham); Carol M. Mangione, MD, MSPH (University of California, Los Angeles); Maureen G. Phipps, MD, MPH (Brown University, Providence, Rhode Island); Michael Silverstein, MD, MPH (Boston University, Boston, Massachusetts); Melissa A. Simon, MD, MPH (Northwestern University, Evanston, Illinois); Chien-Wen Tseng, MD, MPH, MSEE (University of Hawaii, Honolulu, and Pacific Health Research and Education Institute, Honolulu, Hawaii).

*Members of the USPSTF at the time this recommendation was finalized. For a list of current USPSTF members, go to http://www.uspreventiveservicestaskforce.org/Page/Name/our-members.

Financial Disclosures/Conflicts of Interest

The U.S. Preventive Services Task Force (USPSTF) has an explicit policy concerning conflict of interest. All members disclose at each meeting if they have a significant financial, professional/business, or intellectual conflict for each topic being discussed. USPSTF members with conflicts may be recused from discussing or voting on recommendations about the topic in question.

Conflict of Interest Disclosures

All authors have completed and submitted the International Committee of Medical Journal Editors (ICMJE) Form for Disclosure of Potential Conflicts of Interest. Authors followed the policy regarding conflicts of interest described at https://www.uspreventiveservicestaskforce.org/Page/Name/conflict-of-interest-disclosures. All members of the USPSTF receive travel reimbursement and an honorarium for participating in USPSTF meetings. No other disclosures are reported.

Guideline Status

This is the current release of the guideline.

This guideline updates a previous version: U.S. Preventive Services Task Force (USPSTF). Screening for obesity in children and adolescents: US Preventive Services Task Force recommendation statement. Pediatrics. 2010 Feb;125(2):361-7.

This guideline meets NGC's 2013 (revised) inclusion criteria.

Guideline Availability

Available from the U.S. Preventive Services Task Force (USPSTF) Web site .

Availability of Companion Documents

The following are available:

Evidence Reviews:

> O'Connor EA, Evans CV, Burda BU, Walsh ES, Eder M, Lozano P. Screening for obesity and interventions for weight management in children and adolescents: evidence report and systematic review for the U.S. Preventive Services Task Force. JAMA. 2017 Jun 20;317(23):2437-44.
> O'Connor EA, Evans CV, Burda BU, Walsh ES, Eder M, Lozano P. Screening for obesity and interventions for weight management in children and adolescents: a systematic evidence review for the U.S. Preventive Services Task Force. Evidence Synthesis No. 150. Publication No. 15-05219-EF-1. Rockville (MD): Agency for Healthcare Research and Quality; 2017 Jun. 272 p.

Available from the U.S. Preventive Services Task Force (USPSTF) Web site .

The following is also available:

> Screening for obesity in children and adolescents: clinical summary. Rockville (MD): U.S. Preventive Services Task Force; 2017 Jun. 1 p. Available from the USPSTF Web site .

The Electronic Preventive Services Selector (ePSS) is an application designed to provide primary care clinicians and health care teams timely decision support regarding appropriate screening, counseling and preventive services for their patients. It is based on the current, evidence-based recommendations of the USPSTF and can be searched by specific patient characteristics such as age, sex, and selected behavioral risk factors.

Patient Resources

Myhealthfinder is a new tool that provides personalized recommendations for clinical preventive services specific to the user's age, gender, and pregnancy status. It features evidence-based recommendations from the USPSTF and is available at www.healthfinder.gov .

NGC Status

This NGC summary was completed by ECRI on June 24, 2005. The information was verified by the guideline developer on June 30, 2005. This NGC summary was updated by ECRI Institute on March 4, 2010. The updated information was verified by the guideline developer on March 29, 2010. This summary was updated by ECRI Institute on July 20, 2010 following the U.S. Food and Drug Administration advisory

on Orlistat. This summary was updated by ECRI Institute on August 4, 2017. The information was verified by the guideline developer on August 31, 2017.

This NEATS assessment was completed by ECRI Institute on August 11, 2017. The information was verified by the guideline developer on August 31, 2017.

Copyright Statement

Disclaimer

NGC Disclaimer

The National Guideline Clearinghouseâ„¢ (NGC) does not develop, produce, approve, or endorse the guidelines represented on this site.

All guidelines summarized by NGC and hosted on our site are produced under the auspices of medical specialty societies, relevant professional associations, public or private organizations, other government agencies, health care organizations or plans, and similar entities.

Guidelines represented on the NGC Web site are submitted by guideline developers, and are screened solely to determine that they meet the NGC Inclusion Criteria.

NGC, AHRQ, and its contractor ECRI Institute make no warranties concerning the content or clinical efficacy or effectiveness of the clinical practice guidelines and related materials represented on this site. Moreover, the views and opinions of developers or authors of guidelines represented on this site do not necessarily state or reflect those of NGC, AHRQ, or its contractor ECRI Institute, and inclusion or hosting of guidelines in NGC may not be used for advertising or commercial endorsement purposes.

Readers with questions regarding guideline content are directed to contact the guideline developer.